School of Computer Science

UNIVERSITY OF PETROLEUM AND ENERGY STUDIES

DEHRADUN, UTTARAKHAND

System Monitoring and Configuration Management

Lab File

(2024)

for

6th Semester

Submitted To:

Dr. Hitesh Kumar Sharma

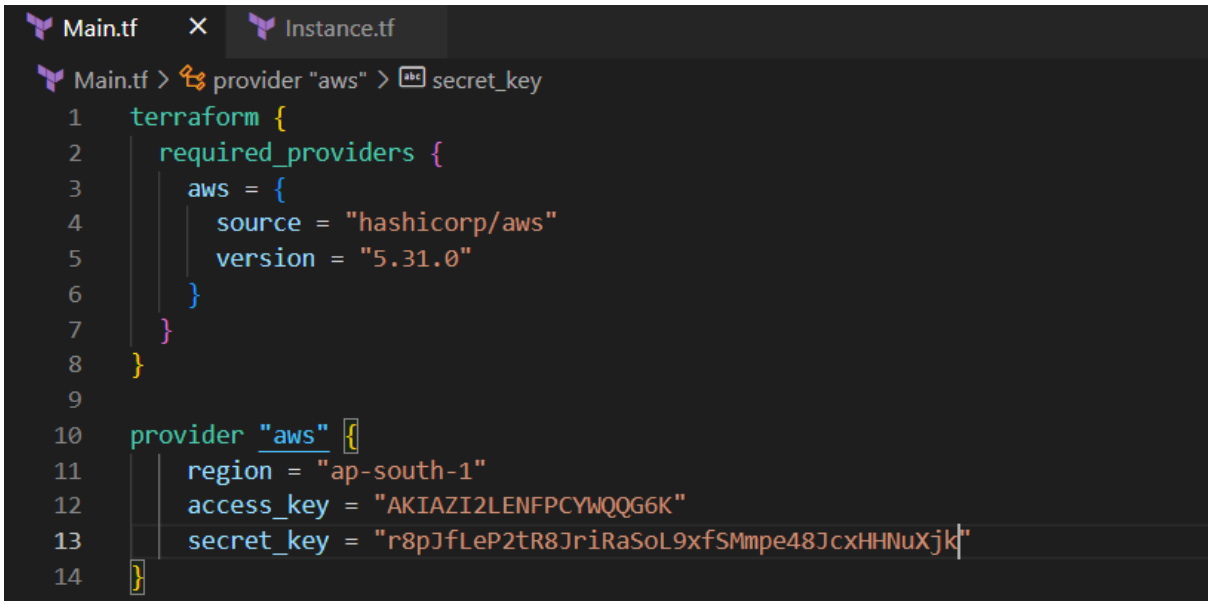
Submitted By:

Eksha Malhotra
B. Tech. CSE DevOps
[6h Semester]
Sap id- 500091532
Batch 1
R2142210300

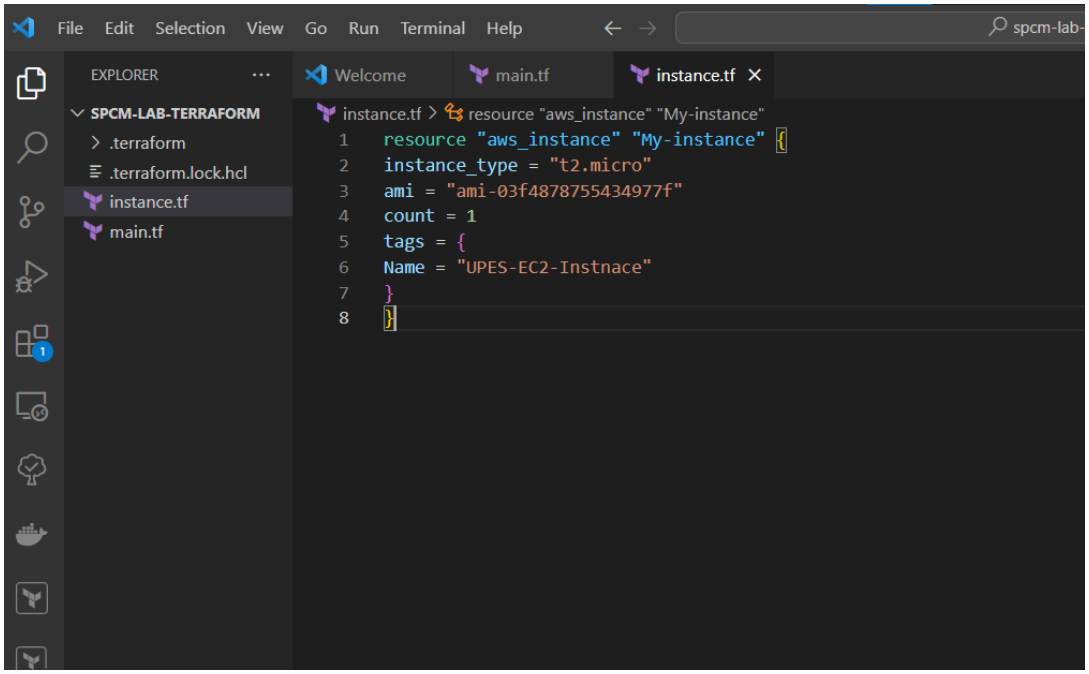
LAB EXERCISE 3

Aim: Provisioning an EC2 Instance on AWS

Step 1: Create Terraform Configuration File (main.tf)



Step 2: Create Terraform Configuration File for EC2 instance (instance.tf)



Step 3: Initialize Terraform:

```
F:\SEM 6\SPCM_LAB\SPCM_LAB_TERRAFORM>terraform init

Initializing the backend...

Initializing provider plugins...
- Reusing previous version of hashicorp/aws from the dependency lock file
- Using previously-installed hashicorp/aws v5.31.0

Terraform has been successfully initialized!

You may now begin working with Terraform. Try running "terraform plan" to see
any changes that are required for your infrastructure. All Terraform commands
should now work.

If you ever set or change modules or backend configuration for Terraform,
rerun this command to reinitialize your working directory. If you forget, other
commands will detect it and remind you to do so if necessary.

F:\SEM 6\SPCM_LAB\SPCM_LAB_TERRAFORM>terraform validate
Success! The configuration is valid.
```

Step 4: Apply Validate

```
F:\SEM 6\SPCM_LAB\SPCM_LAB_TERRAFORM>terraform validate
Success! The configuration is valid.
```

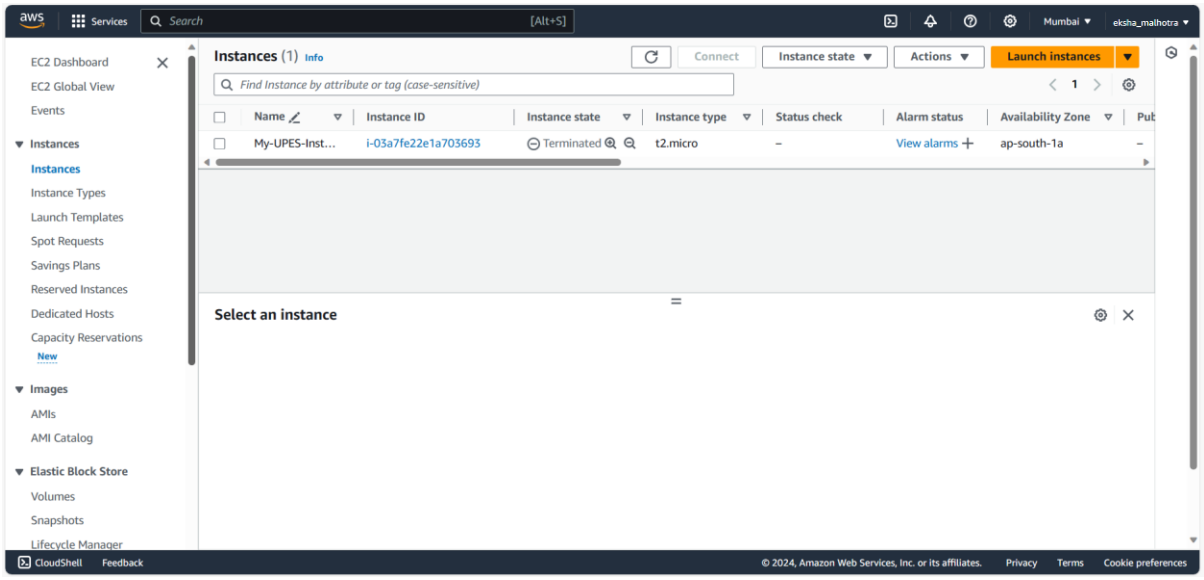
Step 5: Review Plan:

```
F:\SEM 6\SPCM_LAB\SPCM_LAB_TERRAFORM>terraform plan

Terraform used the selected providers to generate the following execution plan. Resource actions are indicated with the
following symbols:
  + create

Terraform will perform the following actions:

  # aws_instance.My-Instnace[0] will be created
  + resource "aws_instance" "My-Instnace" {
      + ami                                  = "ami-03f4878755434977f"
      + arn                                  = (known after apply)
      + associate_public_ip_address          = (known after apply)
      + availability_zone                    = (known after apply)
      + cpu_core_count                       = (known after apply)
      + cpu_threads_per_core                 = (known after apply)
      + disable_api_stop                     = (known after apply)
      + disable_api_termination              = (known after apply)
      + ebs_optimized                        = (known after apply)
      + get_password_data                    = false
      + host_id                              = (known after apply)
      + host_resource_group_arn              = (known after apply)
      + iam_instance_profile                 = (known after apply)
      + id                                   = (known after apply)
      + instance_initiated_shutdown_behavior = (known after apply)
      + instance_lifecycle                   = (known after apply)
      + instance_state                       = (known after apply)
      + instance_type                        = "t2.micro"
      + ipv6_address_count                   = (known after apply)
      + ipv6_addresses                       = (known after apply)
      + key_name                             = (known after apply)
      + monitoring                           = (known after apply)
      + outpost_arn                          = (known after apply)
      + password_data                        = (known after apply)
      + placement_group                      = (known after apply)
      + placement_partition_number           = (known after apply)
      + primary_network_interface_id         = (known after apply)
      + private_dns                          = (known after apply)
      + private_ip                           = (known after apply)
      + public_dns                           = (known after apply)
      + public_ip                            = (known after apply)
      + secondary_private_ips                = (known after apply)
      + security_groups                      = (known after apply)
      + source_dest_check                    = true
      + spot_instance_request_id             = (known after apply)
      + subnet_id                            = (known after apply)
      + tags                                 = {
          + "Name" = "My-UPES-Instnace"
        }
      + tags_all                             = {
          + "Name" = "My-UPES-Instnace"
        }
      + tenancy                              = (known after apply)
      + user_data                            = (known after apply)
      + user_data_base64                     = (known after apply)
      + user_data_replace_on_change          = false
      + vpc_security_group_ids               = (known after apply)
    }

Plan: 1 to add, 0 to change, 0 to destroy.

─────────────────────────────────────────────────────────────────────────────

Note: You didn't use the -out option to save this plan, so Terraform can't guarantee to take exactly these actions if
you run "terraform apply" now.
```

```
Note: You didn't use the -out option to save this plan, so Terraform can't guarantee to take exactly these actions if
you run "terraform apply" now.

F:\SEM 6\SPCM_LAB\SPCM_LAB_TERRAFORM>terraform apply

Terraform used the selected providers to generate the following execution plan. Resource actions are indicated with the
following symbols:
  + create

Terraform will perform the following actions:

  # aws_instance.My-Instnace[0] will be created
  + resource "aws_instance" "My-Instnace" {
      + ami                                  = "ami-03f4878755434977f"
      + arn                                  = (known after apply)
      + associate_public_ip_address          = (known after apply)
      + availability_zone                    = (known after apply)
      + cpu_core_count                       = (known after apply)
      + cpu_threads_per_core                 = (known after apply)
      + disable_api_stop                     = (known after apply)
      + disable_api_termination              = (known after apply)
      + ebs_optimized                        = (known after apply)
      + get_password_data                    = false
      + host_id                              = (known after apply)
      + host_resource_group_arn              = (known after apply)
      + iam_instance_profile                 = (known after apply)
      + id                                   = (known after apply)
      + instance_initiated_shutdown_behavior = (known after apply)
      + instance_lifecycle                   = (known after apply)
      + instance_state                       = (known after apply)
      + instance_type                        = "t2.micro"
      + ipv6_address_count                   = (known after apply)
      + ipv6_addresses                       = (known after apply)
      + key_name                             = (known after apply)
      + monitoring                           = (known after apply)
      + outpost_arn                          = (known after apply)
      + password_data                        = (known after apply)
      + placement_group                      = (known after apply)
      + placement_partition_number           = (known after apply)
      + primary_network_interface_id         = (known after apply)
      + private_dns                          = (known after apply)
      + private_ip                           = (known after apply)
      + public_dns                           = (known after apply)
      + public_ip                            = (known after apply)
      + secondary_private_ips                = (known after apply)
      + security_groups                      = (known after apply)
      + source_dest_check                    = true
      + spot_instance_request_id             = (known after apply)
      + subnet_id                            = (known after apply)
      + tags                                 = {
          + "Name" = "My-UPES-Instnace"
        }
      + tags_all                             = {
          + "Name" = "My-UPES-Instnace"
        }
      + tenancy                              = (known after apply)
      + user_data                            = (known after apply)
      + user_data_base64                     = (known after apply)
      + user_data_replace_on_change          = false
      + vpc_security_group_ids               = (known after apply)
    }

Plan: 1 to add, 0 to change, 0 to destroy.

Do you want to perform these actions?
  Terraform will perform the actions described above.
  Only 'yes' will be accepted to approve.

  Enter a value: yes

aws_instance.My-Instnace[0]: Creating...
aws_instance.My-Instnace[0]: Still creating... [10s elapsed]
aws_instance.My-Instnace[0]: Still creating... [20s elapsed]
aws_instance.My-Instnace[0]: Still creating... [30s elapsed]
aws_instance.My-Instnace[0]: Creation complete after 40s [id=i-03a7fe22e1a703693]

Apply complete! Resources: 1 added, 0 changed, 0 destroyed.
```

Step 6: Apply Changes

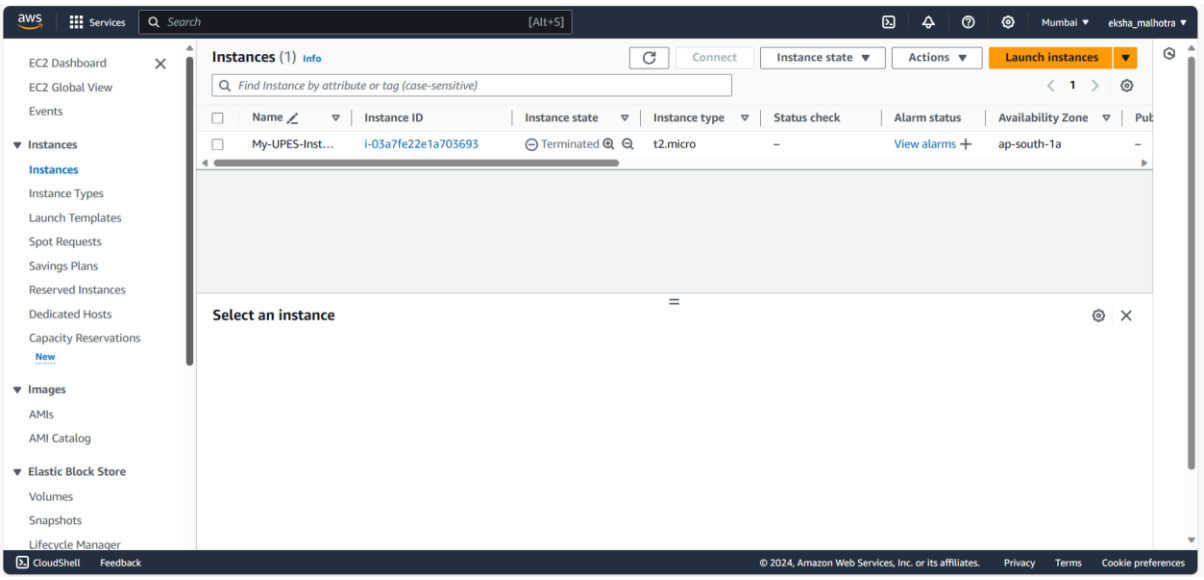
```
Plan: 1 to add, 0 to change, 0 to destroy.

Do you want to perform these actions?
  Terraform will perform the actions described above.
  Only 'yes' will be accepted to approve.

  Enter a value: yes

aws_instance.My-Instnace[0]: Creating...
aws_instance.My-Instnace[0]: Still creating... [10s elapsed]
aws_instance.My-Instnace[0]: Still creating... [20s elapsed]
aws_instance.My-Instnace[0]: Still creating... [30s elapsed]
aws_instance.My-Instnace[0]: Creation complete after 40s [id=i-03a7fe22e1a703693]

Apply complete! Resources: 1 added, 0 changed, 0 destroyed.
```



Step 7: Cleanup Resources

```
F:\SEM 6\SPCM_LAB\SPCM_LAB_TERRAFORM>terraform destroy
aws_instance.My-Instnace[0]: Refreshing state... [id=i-03a7fe22e1a703693]

Terraform used the selected providers to generate the following execution plan. Resource actions are indicated with the following symbols:
  - destroy

Terraform will perform the following actions:

  # aws_instance.My-Instnace[0] will be destroyed
  - resource "aws_instance" "My-Instnace" {
      - ami                                  = "ami-03f4878755434977f" -> null
      - arn                                  = "arn:aws:ec2:ap-south-1:637423348062:instance/i-03a7fe22e1a703693" -> null
      - associate_public_ip_address          = true -> null
      - availability_zone                    = "ap-south-1a" -> null
      - cpu_core_count                       = 1 -> null
      - cpu_threads_per_core                 = 1 -> null
      - disable_api_stop                     = false -> null
      - disable_api_termination              = false -> null
      - ebs_optimized                        = false -> null
      - get_password_data                    = false -> null
      - hibernation                          = false -> null
      - id                                   = "i-03a7fe22e1a703693" -> null
      - instance_initiated_shutdown_behavior = "stop" -> null
      - instance_state                       = "running" -> null
      - instance_type                        = "t2.micro" -> null
      - ipv6_address_count                   = 0 -> null
      - ipv6_addresses                       = [] -> null
      - monitoring                           = false -> null
      - placement_partition_number           = 0 -> null
      - primary_network_interface_id         = "eni-0ebfddd302e87b053" -> null
      - private_dns                          = "ip-172-31-35-24.ap-south-1.compute.internal" -> null
      - private_ip                           = "172.31.35.24" -> null
      - public_dns                           = "ec2-43-205-114-204.ap-south-1.compute.amazonaws.com" -> null
      - public_ip                            = "43.205.114.204" -> null
      - secondary_private_ips                = [] -> null
      - security_groups                      = [
          - "default",
        ] -> null
      - source_dest_check                    = true -> null
      - subnet_id                            = "subnet-0fb95688eaa188f7d" -> null
      - tags                                 = {
          - "Name" = "My-UPES-Instnace"
        } -> null
      - tags_all                             = {
          - "Name" = "My-UPES-Instnace"
        } -> null
      - tenancy                              = "default" -> null
      - user_data_replace_on_change          = false -> null
      - vpc_security_group_ids               = [
          - "sg-0c6b5aae418c53ba2",
        ] -> null

      - capacity_reservation_specification {
          - capacity_reservation_preference = "open" -> null
        }

      - cpu_options {
          - core_count       = 1 -> null
          - threads_per_core = 1 -> null
        }

      - credit_specification {
          - cpu_credits = "standard" -> null
```

```
      - capacity_reservation_specification {
          - capacity_reservation_preference = "open" -> null
        }

      - cpu_options {
          - core_count       = 1 -> null
          - threads_per_core = 1 -> null
        }

      - credit_specification {
          - cpu_credits = "standard" -> null
        }

      - enclave_options {
          - enabled = false -> null
        }

      - maintenance_options {
          - auto_recovery = "default" -> null
        }

      - metadata_options {
          - http_endpoint               = "enabled" -> null
          - http_protocol_ipv6          = "disabled" -> null
          - http_put_response_hop_limit = 1 -> null
          - http_tokens                 = "optional" -> null
          - instance_metadata_tags      = "disabled" -> null
        }

      - private_dns_name_options {
          - enable_resource_name_dns_a_record    = false -> null
          - enable_resource_name_dns_aaaa_record = false -> null
          - hostname_type                        = "ip-name" -> null
        }

      - root_block_device {
          - delete_on_termination = true -> null
          - device_name           = "/dev/sda1" -> null
          - encrypted             = false -> null
          - iops                  = 100 -> null
          - tags                  = {} -> null
          - throughput            = 0 -> null
          - volume_id             = "vol-082d5578223000e93" -> null
          - volume_size           = 8 -> null
          - volume_type           = "gp2" -> null
        }
    }

Plan: 0 to add, 0 to change, 1 to destroy.

Do you really want to destroy all resources?
  Terraform will destroy all your managed infrastructure, as shown above.
  There is no undo. Only 'yes' will be accepted to confirm.

  Enter a value: yes

aws_instance.My-Instnace[0]: Destroying... [id=i-03a7fe22e1a703693]
aws_instance.My-Instnace[0]: Still destroying... [id=i-03a7fe22e1a703693, 10s elapsed]
aws_instance.My-Instnace[0]: Still destroying... [id=i-03a7fe22e1a703693, 20s elapsed]
aws_instance.My-Instnace[0]: Still destroying... [id=i-03a7fe22e1a703693, 30s elapsed]
aws_instance.My-Instnace[0]: Destruction complete after 31s
```


aws
Services
Search
[Alt+S]
Mumbai
eksha_malhotra
EC2 Dashboard
EC2 Global View
Events
Instances
Instances
Instance Types
Launch Templates
Spot Requests
Savings Plans
Reserved Instances
Dedicated Hosts
Capacity Reservations
New
Images
AMIs
AMI Catalog
Elastic Block Store
Volumes
Snapshots
Lifecycle Manager
Instances (1) Info
Connect
Instance state
Actions
Launch instances
Find Instance by attribute or tag (case-sensitive)
1
Name
Instance ID
Instance state
Instance type
Status check
Alarm status
Availability Zone
Pub
My-UPES-Inst...
i-03a7fe22e1a703693
Terminated
t2.micro
–
View alarms
ap-south-1a
–
Select an instance
CloudShell
Feedback
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